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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,120	04/08/2004	Yoshikazu Miyajima	03560.003451	8660
5514	7590	11/15/2005	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO			GUTIERREZ, KEVIN C	
30 ROCKEFELLER PLAZA			ART UNIT	
NEW YORK, NY 10112			PAPER NUMBER	
			2851	

DATE MAILED: 11/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/820,120

Applicant(s)

MIYAJIMA ET AL.

Examiner

Kevin Gutierrez

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS; WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5-18-04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species I (figure 1) in the reply filed on October 18 2005 is acknowledged. The traversal is on the ground(s) that that the various embodiments are so closely related and do not require separate fields of search, and that multiple filings and prosecution potentially resulting from the election of species would result in added burden on Applicants, the Office, and the public at large. This is not found persuasive because the various species are patentably distinct and burden in the examination of the various species lies in consideration of the patentably distinct inventions in one application. Added burden on either the Applicants or the public at large is not germane to this issue. The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

2. Claims 5, 6 and 13 are objected to because the following lacks proper antecedent basis:

- a. Claims 5 and 6, Page 20 - the supply pipe
- b. Claim 13, Page 22 - the device

Appropriate correction is required.

3. Claim 13 is objected to as being an improper dependent claim. The claim is directed to a device manufactured with a group of manufacturing systems, including

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the exposure system according to claim 12. However, it is conceivable that another group of manufacturing systems, including an exposure system other than the system in claim 12 can manufacture the device. For example, one ordinary skilled in the art would use any other lithographic apparatus to manufacture the device. Hence, the claim does not further limit claim 12 as required by 35 USC 112, 4th paragraph. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4 and 7-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Hara (US 2002/0015139).

Regarding claim 1, Hara discloses

- “a base (61; surface plate) having a reference surface;
- a moving unit (106, 111A-B, 65 and 75B) which moves along the reference surface ([0074], lines 1-4);
- a static bearing which is provided in the moving unit ([0075], lines 1-4) and which supports the moving unit such that the moving unit can move along the

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reference surface ([0075], lines 4-6, where a gap movement between 106 and 61 is maintained); and

- a temperature controller which is provided in the moving unit and which controls the temperature of gas supplied to the static bearing ([0082], lines 14-17)."

Regarding claim 2, Hara discloses

- "a target (79; moving mirror) which is mounted on the moving unit;
- and a coil unit (75A; stationary member contains coil; [0004], line 7) which drives the moving unit along the reference surface (61), wherein the temperature controller is disposed between ([0086], lines 10-12, where an exhaust opening (temperature controller) extends throughout 106) the coil unit (75A or 75B) and the target (79)."

Regarding claim 3, Hara discloses "wherein the coil unit is disposed in the moving unit ([0004], lines 10-11)."

Regarding claim 4, Hara discloses "a supply pipe which is disposed in the moving unit ([0086], lines 10-13, where an exhaust opening extends through 106) and through which the gas is supplied ([0086], lines 14-16), wherein the supply pipe is adjacent to the temperature controller ([0081], lines 6-8)."

Regarding claim 7, Hara discloses "wherein the moving unit comprises a fine-motion driver which drives the target (79) in at least one direction ([0076], lines 10-12; where the fine-motion driver is mechanism that moves 79 in a z-direction), and the temperature controller is disposed between ([0086], lines 10-12, where an

exhaust opening extends throughout 106) the coil unit (75A or 75B) and the fine-motion driver.”

Regarding claim 8, Hara discloses “wherein the fine-motion driver drives the target in six directions ([0076], lines 11-14, where the target is capable of moving in the z-direction and rotate around each of the x-, y-, and z-axes.).”

Regarding claim 9, Hara discloses “wherein the temperature controller is disposed near the outer periphery of the moving unit (where the temperature controller is installed in the centralized piping 203, [0081], lines 7-8, and to branch pipes 203A, 203B; see Fig. 6).”

Regarding claim 10, Hara discloses “further comprising a laser interferometer (76, 77) for measuring the position of the moving unit ([0075], lines 7-9, where coordinates are use for positioning of stage unit).”

Regarding claim 11, Hara further discloses the claimed limitations set forth in claims 1 and 2.

Regarding claim 12, Hara discloses all of the claimed limitations set forth in claim 1 and further discloses “an exposure system which transfers a pattern formed on an original onto a substrate and which includes a stage apparatus for moving at least one of the original and the substrate ([0069] and [0070], lines 5-9)”

Regarding claim 13, Hara discloses “manufacturing the device using a group of manufacturing systems, including an exposure system, according to claim 12 ([0002], lines1-3).”

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

7. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being obvious over Hara.

Regarding claim 14, Hara discloses

- “a base (61) having a reference surface;
- a first moving unit (63, 64, which comprises 105 and 101) which moves along the reference surface within a first range;
- a second moving unit (68A, which comprise of 75A and 75B) which is placed on the first moving unit (68A is supported via hydrostatic bearings above 105)” and
- “a temperature controller which is disposed between the first moving unit and the second moving unit ([0086], lines 10-12, where an exhaust pipe (temperature controller) extends throughout 106, which is relatively between the first and second moving unit).”

Hara discloses the claimed invention except for the first moving unit which moves with respect to the first moving unit within a second range which is smaller than that of the first range. It would have been obvious to one having ordinary skilled in the art at the time the invention was made to have a first moving unit which moves with respect to the first moving unit within a second range which is smaller than that of the first range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum and workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 15, Hara further discloses “a coil unit provided in the first moving unit ([0004], lines 7-9; [0071], lines 1-3, where the stationary members include a coil).”

8. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara in view of Emoto (US 2001/0001248).

Hara discloses a “wherein the temperature controller uses a coolant for controlling the temperature ([0081], lines 6-8). Hara does not disclose (claim 5) “the direction in which the coolant flows is opposite to that in which the gas flows through the supply pipe” and (claim 6) “wherein at least a portion of the supply pipe is surrounded by the temperature controller.”

However, having the direction in which the coolant flows is opposite to that in which the gas flows through the supply pipe, which at least a portion is surrounded by the temperature controller is known to the art as it is evident by the teaching of Emoto (fig. 1A, where the cooling means circulates a cooling media 3a-3c which flows in opposite vertical directions (indicated by arrows). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the temperature controller of Hara by having coolant flowing in an opposite direction of the gas flow with a supply pipe between the circulating cooling media. The ordinary artisan would have been motivated to modify the temperature controller of Hara in a manner described above for at least the purpose to promote the cooling of the gas.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Emoto (US 2001/0055102) and Binnard et al (6,313,550) disclose a cooling structure for a certain element and Segers et al (6,721,035) and Blaesing-Bangert et al (US 2003/0053037) disclose a gas gearing structure for moving an element.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Gutierrez whose telephone number is (571)-272-5922. The examiner can normally be reached on Monday-Friday: 7:30 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571)-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William Perkey
Primary Examiner

Kevin Gutierrez
Examiner
Art Unit 2851

November 4, 2005